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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,100	12/05/2003	Brad Calder	DYOU33.001AUS	3083
20995 7590 08/06/2008 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614				
EXAMINER				
KANG, INSUN				
ART UNIT		PAPER NUMBER		
2193				
NOTIFICATION DATE		DELIVERY MODE		
08/06/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

### Office Action Summary

**Application No.**

10/729,100

**Applicant(s)**

CALDER ET AL.

**Examiner**

INSUN KANG

**Art Unit**

2193

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19-27, 29-40 and 48-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-27, 29-40, and 48-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/888)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is in response to the RCE amendment filed on 5/19/2008.
2. Claims 1-17, 19-27, 29-40, and 48-55 are pending in the application.

#### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-17, 19-27, 29-40, and 48-55 are rejected under 35 U.S.C. 102(c) as being anticipated by Dimpsey et al. (US patent 7,114,150) hereafter Dimpsey.

Per claim 1:

Dimpsey discloses:

- identifying at least one construct in a program wherein the program comprises native instructions for execution on a first processor having a first machine instruction set (i.e. “a specified location in a routine,” col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51; Fig.11);
- assigning at least one native instruction of the program proximate the construct to be a trigger to invoke analysis code (i.e. col. 19 lines 10-26).

- and interpreting, via an interpreter (i.e. If the code of the hot spot method is interpreted,” col. 15 lines 52-61),
- the program on a second processor having a second machine instruction set (i.e. “execution of a hook,” col. 8 lines 33-45; Fig.1, 2A),
- wherein during the interpretation, upon interpreting the assigned native instruction, identifying the assigned native instruction as the trigger (i.e. col. 19 lines 10-26) invoking the analysis code by the interpreter at the identified construct in response to identifying the trigger (i.e. “if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot,” col. 15 lines 62-67)
- wherein the analysis code includes machine instructions of the second machine instruction set for execution directly on the second processor (i.e. “Hooks may be inserted...dynamically ...through modification of a loaded executable,” col. 10 lines 17-25)
- and wherein the analysis code and the interpreter communicate via a predefined interface (i.e. “a JVM interface,” col. 18 lines 4-15; “JVMPI,” col. 2 lines 13-17).

Per claim 2:

Dimpsey further discloses:

- wherein the construct is selected from the group comprising: a basic block of native instructions, a specified native instruction, a group of native

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instructions, and a native procedure (i.e. “a specified location in a routine,”

col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51).

Per claim 3:

Dimpsey further discloses:

- during the identification of a construct, the trigger is created and information about the trigger is stored in a file for usage by the interpreter (i.e. “stores the trace data buffer...stored in a file for post-processing,” col. 8 lines 35-45; col. 9 lines 28-54).

Per claim 4:

Dimpsey further discloses:

- wherein during the identification of a construct, the trigger is created and information about the trigger is stored in the program (i.e. col. 9 lines 28-54).

Per claim 5:

Dimpsey further discloses:

- wherein the predefined interface includes a registration procedure for the analysis code to register with the interpreter (i.e. col. 15 lines 52-61).

Per claim 6:

Dimpsey further discloses:

- wherein invoking the analysis code consists of providing to the analysis code at least one item selected from the group comprising: a null statement, a register value, a memory value, a program counter address, branch instructions, and an effective address (i.e. col. 16 lines 12-20; col. 15 lines 29-41 and 52-61).

Per claim 7:

Dimpsey further discloses:

- registering the analysis code with the interpreter via a predefined application programming interface (i.e. “a JVM interface,” col. 18 lines 4-15; “JVMPI,” col. 2 lines 13-17).

Per claim 8:

Dimpsey further discloses:

- wherein interpretation comprises emulation (i.e. JVM, col. 15 lines 52-61).

Per claim 9:

Dimpsey further discloses:

- wherein interpretation comprises simulation (i.e. “Hardware performance tools,” col. 1 lines 28-30).

Per claim 10:

Dimpsey discloses:

- storing a compiled analysis binary program, wherein the analysis binary program includes machine instructions from a first machine instruction set (i.e. “stores the trace data buffer,” col. 8 lines 35-45; col. 9 lines 28-54).
- wherein the analysis binary program is configured to analyze or trace state information of an interpretable program; and interpreting via an interpreter, the interpretable program interpretable program, wherein the interpretable program comprise native machine instructions of a second machine instruction set; assigning at least one native instruction of the interpretable program proximate a selected construct to be a trigger to invoke the analysis binary program (i.e. col. 19 lines 10-26; col. 10 lines 17-23; col.8 lines 35-45); and interpreting, via an interpreter comprising machine instructions from the first machine instruction set and executing on a processor configured to execute the first machine instruction set (i.e. “if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot,” col. 15 lines 62-67; col. 10 lines 17-23; col.8 lines 35-45)
- the interpretable program during the interpreting, upon encountering the assigned native instruction proximal a selected construct in the interpretable program identifying the assigned native instruct as the trigger and invoking the analysis binary program by the interpreter and providing at least one item of state information about the execution of the interpretable program in response to identifying the trigger (i.e. col. 19 lines 10-26; “The execution of

the hooks ...to get an understanding of the caller method's characteristics,"

col. 2 lines 48-55; col. 10 lines 17-23; col.8 lines 35-45).

Per claim 11:

Dimpsey further discloses:

- the state information includes register values, parameter values, instruction addresses, or data addresses (i.e. col. 7 lines 54-60; col. 8 lines 39-50).

Per claim 12:

Dimpsey further discloses:

- wherein the second machine instruction set includes generic machine instructions that are configured to be emulated on heterogeneous hardware platforms (i.e. Java instruction...intermediate values...for a variety of platform architectures," col. 7, lines 63-67).

Per claim 13:

Dimpsey further discloses:

- wherein the construct comprises a procedure (i.e. "a routine," col. 8 lines 35-45).

Per claim 14:

Dimpsey further discloses:



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- wherein the construct comprises an instruction (i.e. “a program,” col. 8 lines 35-45).

Per claim 15:

Dimpsey further discloses:

- wherein the interpretable program is a binary program configured for direct execution on a second processor (i.e. col. 7, lines 40-44).

Per claim 16:

Dimpsey further discloses:

- storing location information about the selected construct in a file; and using the file during the interpretation so as to identify the selected constructs (i.e. “hash tables may be employed to maintain names associated the records in the trace file...an identifier or a key...into a value for the location of the corresponding data in the table,” col. 9 lines 28-54).

Per claim 17:

Dimpsey further discloses:

- inserting a trigger instruction proximate to the selected construct, (i.e. “if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot,” col. 15 lines 62-67).

Per claim 19:

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Dimpsey further discloses:

- wherein the inserted trigger instruction is a machine instruction that does not substantially affect the performance of the interpretable program (i.e. the dynamic instrumentation of code...to minimize system perturbation during tracing of the execution,” col. 2 lines 36-47).

Per claim 20:

Dimpsey further discloses:

- wherein the inserted trigger instruction is a no-op machine instruction (i.e. “dynamically inserted hooks,” col. 16 lines 12-20).

Per claims 21 and 22, they are another method versions of claims 8 and 9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 8 and 9 above.

Per claim 23:

Dimpsey further discloses:

- additionally comprising ignoring selected machine interactions in the interpretable program (i.e. col. 16 lines 21-30).

Per claim 24:

This claim is another version of the claimed method discussed in claim 10, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth the above.

Dimpsey further discloses a selected condition is processed and the binary code is conditionally invoked (col. 17 lines 12-20).

Per claims 25-27, 29, and 30, they are the system versions of claims 12, 16-17, 21, and 22, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 12, 16-17, 21, and 22 above.

Per claims 31-36, they are another method versions of claims 1-9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 1-9 above.

Per claims 37, 39, and 40, they are the interpreter versions of claims 1-9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 1-9 above.

Per claim 38:

Dimpsey further discloses:

- a predefined application programming interface that is defined by the interpreter so as to allow the analysis code to register and to define one or more callback routines (i.e. col. 11 lines 37-50).

Per claim 42:

Dimpsey further discloses:

- selectively disabling certain of the triggers in the trigger information (i.e. “removal of a hook...turning off the flags,” col. 16 lines 21-30).

Per claim 43:

Dimpsey discloses:

- designating at least one no-op instruction as a trigger in the original code; translating the instructions into native code instructions (i.e. If the code of the hot spot method is interpreted,” col. 15 lines 52-61; “a specified location in a routine,” col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51);
- upon triggering the trigger, transmitting state information via a predefined interface, to analysis code (i.e. col. 15 lines 62-67; col. 10 lines 17-25; “a JVM interface,” col. 18 lines 4-15; “JVMPI,” col. 2 lines 13-17).

Per claim 44:

Dimpsey discloses:

- customizing the analysis code for operation with the original code i.e. col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 45:

Dimpsey discloses:

- means for interpreting a binary program, wherein the means for interpreting provides at least one interface for allowing the means for analyzing to identify to the means for interpreting trace information that is to be gathered during the execution of the binary program, and wherein the means for interpreting transmits gathered trace information to the means for analyzing

upon encountering a no-op instruction in the binary program (i.e. If the code of the hot spot method is interpreted,” col. 15 lines 52-61; “a specified location in a routine,” col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51; “the data collected I the trace buffer is sent to a trace file for post-processing,” col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 46:

Dimpsey discloses:

- identifying at least one trigger location in the binary program; storing the identified trigger location in a file that is separate from the binary program; interpreting the binary program; and invoking analysis code at the identified triggers(i.e. If the code of the hot spot method is interpreted,” col. 15 lines 52-61; “a specified location in a routine,” col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51; “the data collected I the trace buffer is sent to a trace file for post-processing,” col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 47:

Dimpsey discloses:

- identifying at least one trigger location in the binary program; storing the identified trigger location in a data section of the binary program interpreting the binary program; and invoking analysis code at the identified triggers (i.e. If the code of the hot spot method is interpreted,” col. 15 lines 52-61; “a

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specified location in a routine,” col. 8 lines 33-45; “the hot spot... is identified,” col. 2 lines 58-51; “the data collected in the trace buffer is sent to a trace file for post-processing,” col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 48:

Dimpsy discloses: wherein the native trigger instruction comprises at least one machine instruction that does not substantially affect the performance of the program (i.e. the dynamic instrumentation of code...to minimize system perturbation during tracing of the execution,” col. 2 lines 36-47).

Per claim 49:

Dimpsy discloses: the native trigger instruction comprises at least one no-op instruction of the first machine instruction set (i.e. “dynamically inserted hooks,” col. 16 lines 12-20).

Per claims 50-51, they are the system versions of claims 48 and 49, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 48 and 49 above.

Per claims 52 and 53, they are another method versions of claims 48 and 49, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 48 and 49 above.

Per claims 54 and 55, they are the medium versions of claims 48 and 49, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 48 and 49 above.

***Response to Arguments***

5. Applicant's arguments filed on 5/19/2008 have been fully considered but they are not persuasive.

The applicant states that: Dimpsey does not disclose a native instruction of the program is assigned to be a trigger and, upon interpreting and identifying the native instruction as a trigger, analysis code is invoked in response to identifying the trigger. Nowhere does Dimpsey disclose such assigning and upon interpreting the assigned native instruction, identifying the assigned native instruction as the trigger as recited in claim 1 as amended (remark, 9).

In response, Dimpsey discloses a trace hook that is a specialized piece of code at a specific location in either source code or binary code (i.e. col. 10 lines 17-23; col.8 lines 35-45) and the trace hook is inserted into an identified hot spot method code so that the hot spot is analyzed (i.e. col. 19 lines 10-26). In Dimpsey, when a hot spot is detected, a determination is made as to whether the hot spot is native or jitted code, or interpreted code. If it is determined that the hot spot method is native or jitted code, then, the dynamic instrumentation facility patches a hook into the hot spot method that passes control to a handler routine (col. 17 lines 12-20). The code for hot spot is identified and dynamically instrumented for an appropriate metric or characteristic (col. 16 lines 3-20).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Insun Kang/  
Examiner, Art Unit 2193